# EGG MARKETING IN ILLINOIS: THE EFFECT OF MARKET ORGANIZATION AND PRICING PRACTICES ON QUALITY

BY

SCOTT HATHORN, JR.

B. S., Louisiana State University, 1941

M. S., University of Illinois, 1943

AN ABSTRACT OF A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN AGRICULTURAL ECONOMICS
IN THE GRADUATE COLLEGE OF THE
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Scott Hathorn, Jr.

# EGG MARKETING IN ILLINOIS: EFFECTS OF MARKET ORGANIZATION AND PRICING PRATICES ON QUALITY

It is commonly stated that the quality of Illinois eggs is low. It is believed that the organization of the egg market with its lack of proper pricing to differentiate for quality is a factor in this situation, but few specific facts regarding this subject have been assembled. To this problem this investigation is directed.

The objectives of this study are:

1. To describe present markets and market channels for Illinois eggs.
2. To study the results of the operations of a few buyers who pay for eggs on a graded basis.
3. To evolve a recommended procedure for marketing arrangements which provide for pricing practices that will raise the level of egg quality.

Both primary and secondary data were used. Primary data were obtained by personal interview and from the records of various concerns. Secondary data were obtained from various publications such as the Census and reports of the United States Department of Agriculture and the Illinois Department of Agriculture.

## Markets and Market Channels

*Markets.* In view of the location of the city of Chicago within its borders Illinois is an importer of eggs. The average deficit per capita was about 60 eggs prewar as compared with approximately 33 during the war years. Markets for Illinois eggs were classified according to area and type of egg used. Markets according to area are:

(1) terminal markets; (2) large city markets; and (3) local markets. According to type of eggs used markets are: (1) ordinary eggs; (2) breakers; and (3) special eggs. Because of decentralized marketing and direct shipments of eggs from country points to the various types of dealers in several cities, either within or outside of Illinois, no attempt was made to evaluate the importance of each type of market.

Terminal markets.—The decline in the percentage of Illinois egg shipments to four terminal markets (Chicago, New York, Boston, and Philadelphia) from 29.9 per cent in 1932-36 to 18.8 per cent in 1942-46 suggests that egg marketing is becoming more decentralized. The figures upon which these percentages are based include intermarket shipments; therefore, they may overstate the tendency toward decentralization. Chicago, however, is becoming more important as a market for Illinois eggs. In 1942-46, 12.7 per cent of Illinois eggs went to the Chicago terminal market as compared with 9.9 per cent in 1932-36. In general, terminal markets are more important as outlets for Illinois eggs during the flush period of production than during the season of low production. In 1940-46, 12.2 per cent of Illinois eggs were marketed in terminal markets from February through July as compared with 5.1 per cent from August through January.

Large city markets.—Many Illinois eggs other than those marketed through the terminal markets find outlets in large city markets such as Chicago, St. Louis, Peoria, etc. Chicago as a consuming market receives some eggs not included in the reported market receipts and so is included in both classifications. Consumers in such markets are not always able to obtain eggs of a dependable quality; gaining consumer acceptance for high-quality eggs in a large market should be easier than in small markets where eggs of a more dependable quality are more readily available to many consumers.

Local markets.—In 1940, 1,138 Illinois cities and villages of less than 100,000 population in size contained 55.7 per

cent of the total state population. Each constitutes a local market for Illinois eggs. Taken singly, most of these are not important as outlets, but taken collectively, they are very important. Supplies for these local markets tend to be obtained from the surrounding areas. The buying of eggs as "current receipts" at a flat price per dozen in local markets does not encourage quality egg production. Gaining consumer acceptance for high-quality graded eggs might be rather difficult in such markets because many consumers already get eggs of dependable quality direct from farmers.

Ordinary eggs and breakers.—Approximately 91 per cent of the eggs sold by Illinois farmers are ordinary eggs, including those used by breaking and freezing plants, and the remaining nine per cent are special aggs. Dealers buy ordinary eggs from farmers on a "current receipts" basis at a flat price per dozen and they may or may not sell these eggs on a graded basis to their outlets. Many ordinary eggs are sold as "current receipts" to breaking plants which are interested primarily in egg weight rather than quality as long as the eggs are edible. Neither market, ordinary nor breaker, follows buying methods which promote quality egg production on the farm.

Special eggs.—In 1946 it is estimated that three per cent of Illinois eggs were sold on a graded basis to quality fresh egg markets such as dairies, hotels, restaurants, etc., and approximately 5.5 per cent were sold to hatcheries. Both of these markets encourage producers to produce high-quality eggs by paying premiums for eggs of certain desired qualities. These estimates do not allow for eggs from a few specialized poultry farms that have special marketing arrangements for the eggs.

*Market Channels.* To simplify the marketing picture for Illinois eggs the trade channels were classified on the basis of the number of handlers between the producer and the consumer. Various channels for eggs from producer to consumer may be noted as follows:

1. Producer to consumer.
2. Producer to retailer to consumer.
3. Producer to concentrator to retailer to consumer.
4. Producer to first handler to concentrator to retailer to consumer.
5. Producer to concentrator and shipper to chain store to retail unit to consumer.
6. Producer to concentrator and shipper to wholesale receiver to retailer to consumer.

Although no attempt was made to evaluate the importance of these various marketing channels, number four is most common. Buying is done in a number of ways in this trade channel. The more common method is that of the pickup man who collects eggs from farm to farm for a concentrator. In addition to the pickup man, two other country buyers frequently involved in this market channel are country grocery and feed stores. Large quantities of Illinois eggs are sold to country grocery stores who in turn sell those not needed for their local trade to concentrators. Feed dealers also buy eggs from farmers and sell to concentrators. The concentrators sell to retail outlets such as grocery stores, hotels, restaurants, etc., and to wholesalers either in Illinois or other states.

## Actual Results of Grade Buying

A study was made of the actual operating results of three grading stations in northern, central, and southwestern Illinois. The average quality of "current receipt" eggs bought on a non-graded basis in one area situated in northern Illinois for February, 1946, to March, 1947, was 48.6 per cent grade A or better. Figures for other sections of Illinois were not available, but it is doubtful if the quality varies greatly in the different areas of the state.

The quality of eggs bought on a graded basis through the three grading stations during the same period was 88 per cent grade A or better. This figure indicates what can

be done when proper price incentives are offered to producers. Depending on their outlets, the grading stations paid an average premium of 4 to 7 cents a dozen above the local current receipt price. The station with the highest quality outlet paid the highest premium to its suppliers.

Conclusions that may be drawn from this study are:

1. The average quality of Illinois eggs is not low. It is about 50 per cent grade A or better.
2. The quality of eggs bought on a graded basis is approximately 88 per cent grade A or better.
3. That it pays to produce high-quality eggs is indicated by the fact that producers selling eggs on a graded basis averaged 4 to 7 cents a dozen more than the prevailing prices for eggs on a non-graded basis in their respective communities.
4. To raise the level of egg quality in an area, producers must be offered a price incentive for quality. Without an incentive, producers will not produce high-quality eggs.
5. In order to offer producers the proper incentive, a grading station must have both volume and good outlets. If either is lacking, successful operation becomes extremely difficult.

## Marketing Organization

Marketing organization is the arrangement or structure of the parts of the marketing system. Pricing and handling practices of various market agencies were studied by personal interview as follows: (1) large city wholesalers; (2) local dealers; (3) breaking plants; (4) hucksters; (5) country grocery stores; (6) small chain stores; (7) large chain stores; and (8) grading stations. Certain general observations may be made about the way eggs are marketed on a non-graded basis in Illinois.

Eggs are commonly bought from farmers as "current receipts" with no differentiation for quality. Paying prices

to farmers are based on the Chicago "current receipt" quotation less differentials for transportation, handling costs, etc., and on competition in the area. One dealer was found to be taking advantage of the lack of competition in his area by paying lower prices than those paid in adjacent areas where the competition was keener. As a general rule, little precaution was taken by the various dealers to preserve egg quality in the trade channels. Small egg dealers and small grocery stores are perhaps the worst offenders in this respect. Candling of eggs upon purchase from producers is the exception rather than the rule. Unless the eggs are sold on a graded basis to other dealers, candling is generally done by the dealer last handling the eggs before they enter the retail trade. Wholesale dealers whose trade required quality eggs did not, as a rule, get their eggs from Illinois since they were of the opinion that the quality of Illinois eggs was too low to warrant the cost of grading them. Dealers with outlets for high-quality eggs have more incentive to preserve quality than dealers who sell eggs on a non-graded basis.

## Effects of Marketing Organization and Pricing Practices on Egg Quality

*Effects of buying on a non-graded basis.* The prevailing marketing practice of buying and pricing eggs on a non-graded basis in Illinois has certain ill effects:

1. It tends to lower the average level of quality of eggs since no price incentives are offered for better-than-average quality eggs.
2. It overpays producers of low-quality eggs and underpays producers of high-quality eggs.
3. It does not reflect consumer preferences for the various qualities of eggs to producers by appropriate price differentials.
4. It tends to depress the average price paid to producers for eggs in order to cover dealer risk and uncertainty resulting from variations in quality and the presence

of inedible eggs in some producer's eggs.

5. It may depress, to a limited extent, per capita consumption of eggs because of consumer suspicions, prejudices, and uncertainties resulting from quality variations in eggs purchased.

*Effects of buying on a graded basis.* A system of grade buying, which would hold the producers directly responsible for the quality of eggs delivered, would have certain corrective effects:

1. It would tend to raise the average level of egg quality because producers would be paid on the basis of the quality of eggs delivered.
2. Consumer preferences would be reflected back to producers through appropriate price differentials. This gives producers a better opportunity to adjust production according to consumer preferences than is possible under the present system of marketing eggs.
3. Dealer risk and uncertainty resulting from quality variation and the presence of inedible eggs would be eliminated.
4. Standardization would tend to create a more favorable consumer attitude toward eggs when those of high and dependable quality are readily available to them.

## A Proposed System for Marketing Illinois Eggs

Findings in this study indicate that the prevailing system of marketing eggs in Illinois could be improved by a system of marketing eggs on a graded basis. A system of marketing eggs on a graded basis is therefore proposed.

*Advantages.* The advantages of a system of grade buying are (1) marketing costs can be reduced through economies in buying and selling, financing, transporting, assumption of risk, etc.; and (2) both producers and consumers are benefited.

*Limitations.* The grading process costs 1 to 2 cents a dozen more than the cost of candling as performed under the present marketing system. Since the accuracy of a grade depends on the grader's judgment, a body of trained graders must be developed. Once eggs are graded the grade may change unless steps are taken to preserve quality.

*Who would benefit?* Marketing of eggs on a graded basis would reduce marketing costs and improve over-all level of egg quality. Who would benefit—producers or consumers? Economic analysis indicates the following answers:

1. After varying lengths of time benefits from improvements tend to diffuse themselves throughout the entire economy. Under strict competition gains cannot be retained by any particular group for a long period of time.
2. Any reduction in the cost of marketing eggs will benefit:
   a. Only producers in a relatively short period. If wholesalers or retailers can achieve greater efficiency in handling eggs through lower handling costs, the ultimate effect is higher prices to producers supplying the market (presupposing perfect competition, the gains could not be retained by the dealers). The gains of producers in a short period may be insignificant since this period may be limited to only a few days or until additional supplies could be attracted to the market.
   b. Both producers and consumers in a period long enough for adjustments to be made. Whether producers or consumers would benefit most would depend on the relative elasticities of the supply of eggs in the wholesale market and the consumer demand curve. Since egg supplies can be shifted readily from one wholesale market to another in response to a small price change, it is probable that the supply curve is more elastic than the demand

curve; therefore, consumers are likely to gain more than producers.

3. Any improvement in the quality of Illinois eggs would benefit[1]:
   a. Mainly local producers in a relatively short period since higher quality eggs can be sold for higher prices than low quality eggs.
   b. Consumers and producers in a period in which the supply of better quality eggs increases. Higher prices to Illinois producers would lead to increased supplies which in turn would lead to slightly lower prices to consumers. Producers would gain by selling a large proportion of a higher quality product at prices higher than those received before the improvement in quality.

The conclusion to be drawn from the above economic analysis is that Illinois producers stand to gain more from higher prices for higher quality eggs than through the reduced marketing costs.

*Implementing the program.* Steps needed to implement a system of marketing eggs on a graded basis follow:

1. Producers having high quality or those willing to improve their quality should try to sell to outlets which pay premiums for superior quality eggs and to get such outlets established where now unavailable.
2. The Illinois egg law should require that Illinois standards for eggs conform to the U. S. Standards currently in force. Also, the Illinois egg law should require that all eggs sold in the Illinois retail trade be labeled as to grade. If eggs are ungraded, label them

[1]Quality deterioration takes place both on the farm and in trade channels. Since the writer feels that more quality deterioration occurs on the farm than in the trade channels, this section of the analysis deals exclusively with efforts of producers to market high-quality eggs. A somewhat similar analysis could be made of changes in egg quality that occur in the trade channels..

as such. An adequate inspection service must be maintained to make certain that qualities retailed under grades AA and A are really of those qualities.

3. Consumers should be informed as to the meaning of grade designations so that those who are willing to pay premiums may learn which offerings are of really superior quality.
4. Producers should make every attempt to improve the quality of eggs produced on the farm, especially in the care of eggs.
5. Dealers should be encouraged to improve methods of maintaining the quality of eggs while in their hands.
6. Consumer advertising may be used to advantage after the things suggested above have been done.

*Problems in a grade buying system.* These will arise at three levels: (1) grading stations; (2) producers; and (3) general.

The problems of major economic consequence to grading stations are: (1) location; (2) volume; and (3) outlets. The proper solution of each is vital to the success of a grading station. In locating a grading station two basic factors are: (1) the type of eggs desired by potential customers; and (2) the quality of the market now available to producers in the area. A grading station can operate efficiently only if it can achieve optimum output; therefore, it should locate in an area having a considerable surplus of high-quality eggs. Operating a grading station is more hazardous in its early stages than later when it is thoroughly established, because it takes time to develop high-quality outlets without an adequate volume for sale. The success or failure of a grading station also depends on its ability to develop outlets for premium eggs. Grocery stores, dairy companies, hotels, restaurants, etc., in Chicago and St. Louis are possible outlets for high-quality Illinois eggs. Other outlets may be developed by educating consumers on matters of egg quality.

The chief problems facing producers are: (1) how to

preserve the quality of their eggs from the time they are laid until they are sold; and (2) how to increase the proportion of top-quality eggs marketed.

Problems of a general nature are: (1) consumer-producer education; (2) legal; and (3) education of dealers.

Consumer education may be done by: (1) public agencies; (2) the trade; and (3) individuals. Public agencies include educational institutions, etc. At the present time eggs are advertised indirectly on an industry basis by the Poultry and Egg National Board. Advertising by an individual grading station may not be wise since it would not have sufficient volume to support the cost of advertising. If a grading station or a federation of grading stations controls a considerable volume of eggs, advertising emphasizing superior quality of particular grades may be possible. Probably it would be to the advantage of a grading station to leave the work of demand creation to the retailers handling its eggs.

The problem of producer education is not a serious one. If producers are paid for eggs on a quality basis, they will quickly seek ways and means of improving quality.

The present Illinois egg law is out-dated and needs modification. Certain general recommendations for change may be made:

1. The Illinois egg law should require that official Illinois Standards for eggs always conform with the U. S. Standards.
2. The law should require that all eggs sold in the retail trade in Illinois be labeled as to grade. Ungraded eggs would be labeled "ungraded."
3. That eggs must be recandled after a certain number of days is a good feature and should be retained.

To prevent bad practices, an inspection service should be set up with two primary duties: (1) to inspect eggs to see that they actually grade as labeled; and (2) to make periodic

checks to see that recandling dates are not exceeded. Such a service could be provided by the state division of markets.

Dealers should be educated as to methods of maintaining the quality of eggs between producers and consumers. Two very important practices that should be stressed are: (1) speed in moving high-quality eggs through the trade channels; and (2) proper holding conditions for eggs. Eggs should be held in rooms free of odors, at temperatures below 65°F. and at a humidity ranging from 75-85 per cent. These two factors are of prime importance in reducing quality deterioration in eggs in the trade channels.

## Outlook for a System of Marketing Eggs on a Graded Basis

Successful operation of a system of marketing eggs on a graded basis depends on three assumptions:

1. That consumers will demand and be willing to pay premiums for high-quality eggs.
2. That consumer preferences will be reflected back through the marketing channels to producers in the form of appropriate price differentials.
3. That producers will act upon these price incentives and produce the qualities of eggs demanded by consumers.

Consumer demand for high-quality eggs now exists and is capable of being expanded. The prevailing Illinois egg marketing system can be criticized in that it offers little price incentive to producers to encourage production of high-quality eggs. The writer believes that producers will furnish the quality of eggs demanded by consumers if proper price incentives are made available. This opinion is borne out by the results of the three grading stations studied. If the three above assumptions are correct, a system of marketing eggs on a graded basis can be established and expanded in Illinois to the point where it replaces the present system of marketing eggs on a non-graded basis.

## VITA

Scott Hathorn, Jr., was born at Alexandria, Louisiana, on December 11, 1920. He attended public schools at Alexandria, Louisiana, where he graduated in 1937. He attended Louisiana State University from 1937 to 1941, receiving a B. S. in Agricultural Economics in June 1941. From September 1941 until November 1942, he held an assistantship in the Department of Agricultural Economics at the University of Illinois doing part-time research. In February 1943, the M. S. degree in Agricultural Economics from the University of Illinois was granted.

In September 1942, he enlisted in the Army Air Force as an Aviation Cadet and was called to active duty in January 1943. As a member of the 8th AAF, he flew twenty-nine combat missions over Germany during the period, October 1944 to April 1945. He attained the rank of Captain, was a flight commander and a lead-pilot on a B24 Liberator heavy bomber. He was decorated with the Distinguished Flying Cross and the Air Medal with three Oak Leaf Clusters. In October 1945, he was ordered to inactive duty and returned to the University of Illinois to resume graduate studies. Since October 1945, he has held an assistantship in Agricultural Economics at the University of Illinois doing part-time research.

He is a member of Phi Kappa Phi, Alpha Zeta, Gamma Sigma Delta, The American Farm Economic Association, and holds a reserve commission in the United States Army Air Force.